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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,733	06/26/2003	Joshua Oen	884.869US1	6513
21186 7590 04/17/2007 SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402			EXAMINER CHEVALIER, ALICIA ANN	
			ART UNIT 1772	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		04/17/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/607,733	<b>Applicant(s)</b> OEN, JOSHUA	
	<b>Examiner</b> Alicia Chevalier	<b>Art Unit</b> 1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-12, 14-26 and 28-30 is/are pending in the application.
- 4a) Of the above claim(s) 23-26 and 28-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 14-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **RESPONSE TO AMENDMENT**

1. Claims 1-12, 14-26 and 28-30 are pending in the application, claims 23-26 and 28-30 are withdrawn from consideration. Claims 13 and 27 have been cancelled.

### ***REJECTIONS***

2. **The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.**

#### ***Claim Rejections - 35 USC § 112***

3. Claims 14-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term “circuit package” in claim 14 is unclear and renders the claims vague and indefinite. It is unclear what structure is meant by “package.” For purposes of examination a “circuit package” is considered to be any circuit.

#### ***Claim Rejections - 35 USC § 102***

4. Claims 1-4, 7-10, 14, 15 and 17-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Frescura et al. (U.S. Patent No. 3,590,328).

Regarding Applicant’s claims 1 and 14, Frescura discloses an apparatus comprising a heat source comprising a circuit (*col. 2, line 24*), a heat sink (*col. 2, lines 16-17*) and a unitary

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layer of electrically non-conductive material (*col. 3, line 10*) having a first surface adjacent the heat sink, a second surface adjacent the heat source (*figures 2 and 3*), and a plurality of unfilled openings communicatively (*col. 3, lines 3-5*) coupled between the first surface and the second surface (*figures 2 and 3*). A combined area of the plurality of unfilled opening comprises a selected percentage of the first surface (*figures 2 and 3*).

Regarding the limitation “circuit package”, the Examiner has given the term the broadest reasonable interpretation consistent with the written description in applicant’s specification, as it would be interpreted by one of ordinary skill in the art. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); *In re Donaldson Co., Inc.*, 16 F.3d 1190, 1192-95, 29 USPQ2d 1845, 1848-50 (Fed. Cir. 1994). The term “circuit package” is considered to read on a “circuit”.

Regarding Applicant’s claims 2-4, Frescura discloses that selected ones of the plurality of unfilled openings comprise a regular geometric shape. The regular geometry shape is substantially circular or square (*figures 2 and 3*).

Regarding Applicant’s claims 7, 8, 21 and 22, Frescura discloses that the combined area of the plurality of unfilled openings comprises no more than about 90% or 95% of the first surface (*figures 2 and 3*). The combined area of the plurality of unfilled openings is deemed to comprises a selected percentage of the first surface and the second surface and wherein the selected percentage of the second surface is deemed to be different from the selected of the first surface (*figures 2 and 3*).

Regarding Applicant’s claims 9, 10, 15 and 17, Frescura discloses that the unitary layer of electrically non-conductive material comprises a polymer (*col. 4, lines 21-25*) and that the

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thermal interface material is located between the unitary layer of electrically non-conductive material and the heat sink (*col. 3, line 21*).

Regarding Applicant's claims 18-20, Frescura is deemed to disclose that the heat source comprises a transponder, a die and a heat spreader, since the reference discloses that the heat source is a circuit (*col. 2, line 24*).

***Claim Rejections - 35 USC § 103***

5. Claims 5, 6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frescura (U.S. Patent No. 3,590,328).

Frescura is relied upon as described above.

Frescura fails to disclose that selected ones of the plurality of unfilled openings irregular geometric shape or that the combined area of plurality of unfilled openings comprises at least about 90% of the first surface or the thickness of the unitary layer of electrically non-conductive material.

It would have been an obvious matter of design choice to change the shape of shapes of the unfilled openings, since a modification would have involved a mere change in size of the openings. A change in size or shape is generally recognized as being within the level of ordinary skill in the art, absent unexpected results. MPEP 2144.04 (I) and (IV).

One of ordinary skill in the art would have been motivated to change the shape of the openings in order to improve heat dissipation.

Also, the exact amount of open area and thickness of the material is deemed to be a result effective variable with regard to the heat transfer. It would require routine experimentation to

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determine the optimum value of a result effective variable, such as thickness and percent open space, in the absence of a showing of criticality in the claimed thickness and percentage. *In re Boesch*, 205 USPQ 215 (CCPA 1980), *In re Woodruff*, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

6. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frescura (U.S. Patent No. 3,590,328).

Frescura is relied upon as described above.

Frescura fails to disclose that the unitary layer of electrically non-conductive material comprises a non-woven material or a plurality of glass beads.

However, Applicant's specification shows that a polymer layer, a non-woven material layer and a plurality of glass beads layer are equivalent structures known in the art. Therefore, because these three materials are art-recognized equivalents at the time of the invention, one of ordinary skill in the art would have found it obvious to substitute one for another.

Also, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute one material for the other, since it would have been within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use, unless a non-woven material or a plurality of glass beads gives unexpected results. *In re Leshin*, 125 USPQ 416.

#### ***ANSWERS TO APPLICANT'S ARGUMENTS***

7. Applicant's arguments in the response filed December 22, 2006 regarding the 35 USC 112, 102 and 103 rejections of record have been carefully considered but are deemed unpersuasive.

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Applicant argues that the term “circuit package” is well known to those of ordinary skill in the art.

The examiner disagrees Applicant has not defined the term in the specification. Furthermore, Applicant Appendix A is only an example of a possible “circuit package” and is not described in the specification.

Applicant argues that Frescura does not teach that the second surface of the unitary layer is adjacent the heat source.

The examiner disagrees, Fresucra clearly discloses that the unitary layer is *adjacent* the heat source (*figures 2 and 3*). Fresucra does not disclose that the unitary layer is directly touching the heat source. However, Applicant is not claiming that the unitary layer is in direct contact with the heat source.

Applicant also argues that the central cutout 45 is larger than the integrated circuit. However, this is a moot point since the claim do not limit the size of the openings.

### ***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

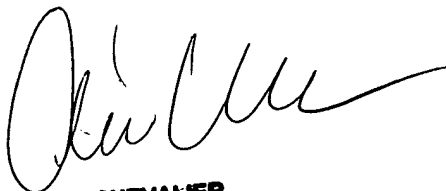
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia Chevalier whose telephone number is (571) 272-1490. The examiner can normally be reached on Monday through Friday from 8:00 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on (571) 272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ac

4/13/07



**ALICIA CHEVALIER  
PRIMARY EXAMINER**